Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

Central Standard. Telescope used was a four-inch BRASHEAR equatorial, with Herschelian eye-piece, power 78.

ALTA, Iowa $\left\{\begin{array}{l}\text{Lat. } 42^\circ\ 40'\text{ N.}\\ \text{Long. } 6^h\ 21^m\text{ W.}\end{array}\right\}$ Approx.

NOTES ON THE TOTAL ECLIPSE OF THE SUN, JANUARY 21–22, 1898, IN INDIA.

BY COLONEL A. BURTON-BROWN, R. A., F. R. A. S.

[Member of the Astronomical Society of the Pacific.]

The central line of totality on the west coast of India passes between Ratnagiri and Rajapur, the latitude of which place is 16° 40′ N., and longitude 73° 35′ E. of Greenwich. Totality commences 22d—$0^h\ 47^m\ 42^s$; has a duration of nearly $2^m\ 2^s$, and the Sun's altitude is 53°, about. The line of shadow strikes across India, cutting the river Ganges a few miles south of Balia and passing on to Jubang in Nepaul, where the duration of totality would be reduced by about 23^s and Sun's altitude by about one-third. There are many circumstances which will influence observers in selecting stations beyond that of the Sun's altitude and length of totality. The most important one will probably be the weather conditions between $0^h\ 30^m$ and $2^h\ 15^m$. Now, if India were a great plain, we might consider that in the third week in January that the conditions of weather will be equally favorable from the west coast to the Ganges, but as the country is a series of undulations, including some hills, local circumstances must be taken into account, and from my own observations and those of others, I am inclined to consider the height of the station which is from 500 to 1500 feet above the sea would be the most satisfactory if not in close proximity to higher ground, and if not within twenty miles either of the seacoast or the Ganges river. Places from 73° 30′ to 75° 45′ east longitude I find are slightly freer from cloud than places east and west of that longitude. Although the daily mean cloud in other places may not be greater, it is often more variable. I am inclined to advise, from atmospheric conditions as well as the position of the Sun and length of totality, that a fairly elevated position on or near the central line between those limits be taken up. No doubt stations north of Rajapur and Nagpur will be selected by some observers, but while the climatic conditions should be good there, they will probably not come up to a carefully selected spot near Indapur, Aundh, or Parainda, none of which are difficult to get to with the requisite instruments. I would here take the opportunity of saying, if a fairly large party is formed, they should be divided *as much as possible.* This I strongly urged for the British-Norwegian expedition in 1896, but instead of selecting places near Bodo on the west coast and places on the Tana Fjord and Russian frontier, as well as Vardoe and Vadsoe, they all huddled together at the latter two most accessible places, where, unfortunately meeting with unfavorable atmospheric conditions, no good results were obtained. It must not be forgotten that two or three exceptional circumstances are now occurring in India — famine and plague — and more recently, earthquakes, so that it may be impossible much before the close of the year to give an exact locality suitable for a scientific expedition. We all hope that in the cooler season these unfortunate conditions will be materially improved and that there may be no obstacle to progress in any part of the country. An elevated post near Indapur would give about $1^m\ 58^s$ totality at Sun's altitude of about fifty degrees.

THE CAUSE OF GRAVITATION.*

By V. Wellman.

According to Newton's law of gravitation, the attractive force of matter is proportional to the mass and inversely proportional to the square of the distance. The rigorous validity of this law has, in recent times, been doubted; but its extraordinary approximation to the truth is unquestionable. Consequently, without going into the question as to whether the law is rigorously valid, I will endeavor to verify it.

The propagation of light through interstellar space shows that this space cannot be absolutely vacant. It is filled with a material, the condition of which we assume to be like that of a gas of extraordinarily rare density. The barometer-formula gives, for the density of air at an altitude, $h = \infty$, which, therefore, corresponds approximately to the density of the interstellar medium,

$$D_\infty = D_0\, 10^{-346},$$

---

* Translated from *Astronomische Nachrichten* by E. F. Coddington.